

U.S. Patent Application Serial No. 10/622,513
Amendment filed February 24, 2006
Reply to OA dated December 6, 2005

REMARKS

Claims 12, 14 and 15 are pending in this application. Claim 14 is canceled without prejudice or disclaimer, and claim 12 is amended herein. Upon entry of this amendment, claims 12 and 15 will be pending. Entry of this amendment and reconsideration of the rejections are respectfully requested.

No new matter has been introduced by this Amendment. Support for the amendment to claim 12 limiting the range to “0.1 part by weight or more to 10 parts by weight or less” may be found in claim 14, which is accordingly canceled herein without prejudice or disclaimer. Applicant submits that claim 12, as amended, has the scope of claim 14 prior to this amendment.

Claims 12 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fisher (U.S. 2002/0086926) in view of Wypych (*Handbook of Fillers*). (Office action paragraph no. 3)

The rejection of claim 12 is overcome by the amendment to the claim. As noted above, the content of the hexaboride has been limited in claim 12 to “from 0.1 part by weight or more to 10 parts by weight or less based on 100 parts by weight of the thermoplastic resin”.

The rejection of claim 14 is respectfully traversed. As a result of the present amendment, claim 12 has been amended to have the scope of claim 14, and claim 14 is accordingly canceled without prejudice or disclaimer.

Fisher teaches in the Examples that lanthanum hexaboride particles can be contained in amounts of 0.01, 0.02, 0.03 and 0.04 part by weight, respectively, per 100 parts by weight of

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polyvinyl butyral. These Examples do not overlap the range of “0.1 to 10 parts by weight or less based on 100 parts” recited in amended claim 12, and therefore do not provide a suggestion for the recited range.

Applicant further notes that Fisher describes in paragraph [0015] that “the amount of lanthanum hexaboride particles ranges from 0.005 to about 0.1 wt% **based on the entire composition**” (emphasis added). Fisher’s upper limit, i.e., “about 0.1 wt%”, bases its weight percentage on the **total weight of the composition**, not of the thermoplastic resin, and hence **does not overlap** the hexaboride content in amended claim 12.

Regarding the Combination of Fisher with Wypych

Wypych is cited for teaching that changing the surface character of a hydrophilic filler from hydrophilic to hydrophobic with a silane compound increases the interaction between the filler and the polymer matrix, thereby improving filler dispersion and rheological properties.

However, Wypych does **not** indicate that lanthanum hexaboride can be considered to be a “hydrophilic filler”. Moreover, Fisher does not refer to the lanthanum hexaboride as a “filler” of any kind. Therefore, there is no suggestion or motivation in Wypych to modify the lanthanum hexaboride in Fisher.

The Examiner also states that “Wypych also teaches the equivalency of using silicon, titanium and zirconium compounds in surface-treating agents”. However, this comment does not appear to address the basic issue of whether there is any suggestion to surface-treat the LaB₆ in

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Fisher.

Applicant therefore submits that no *prima facie* case of obviousness can be made based on the Fisher and Wypych references.

Moreover, in addition to pointing out that there was no *prima facie* case of obviousness over Fisher and Wypych (as well as Takeda et al.), Applicant also previously argued (Amendment of October 3, 2005, bottom of page 6 to page 7) that the present invention shows “unexpected results”, based on the “water resistance” data in the specification. In this argument, Applicant noted that “water resistance” was not mentioned in the references, so the observed effect was clearly “unexpected” over the references. Applicant notes that the Examiner has not responded in the present Office action to this argument.

Applicant therefore submits that claim 12, as amended, is not obvious over Fisher (U.S. 2002/0086926) and Wypych, taken separately or in combination.

Claims 12 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fisher (U.S. 2002/0086926) in view of Wypych (*Handbook of Fillers*) and further in view of Hawley's (*Hawley's condensed Chemical Dictionary, 13th Edition*). (Office action paragraph no. 4)

Reconsideration of the rejection is respectfully requested. As noted above, claim 12 has been amended to have the scope of claim 14, which has accordingly been canceled.

The Examiner cites Fisher and Wypych as above, and further cites *Hawley's* as disclosing

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that “a previously prepared mixture composed of a base material and a high percentage of an ingredient that is critical to the product being manufactured is a masterbatch which permits uniform dispersion of very small amounts (less than 1% like the hexaboride in Fisher’s composition (pages 703-704)”.

The *Hawley's* reference defines “masterbatch”, and indicates that the purpose is for dispersion of small amounts of additives. However, although there may be a general suggestion in *Hawley's* for the use of a masterbatch, this disclosure combined with Fisher and Wypych still does not provide the hexaboride range limitation, nor the surface-treatment of the hexaboride, limitations that were discussed above as lacking in the combination of Fisher and Wypych.

Applicant therefore submits that claim 12, as amended, is not obvious over Fisher (U.S. 2002/0086926), Wypych, and *Hawley's*, taken separately or in combination.

Claims 12 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fisher (U.S. 2002/0086926) in view of Wypych (*Handbook of Fillers*) and further in view of *Hawley's* (*Hawley's condensed Chemical Dictionary, 13th Edition*) and Takeda et al. (JP 2000-169765). (Office action paragraph no. 5)

Reconsideration of the rejection is respectfully requested. As noted above, claim 12 has been amended to have the scope of claim 14, which has accordingly been canceled.

Applicant has argued above that claim 12 is not obvious over the combination of Fisher (U.S. 2002/0086926), Wypych, and *Hawley's*.

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The Examiner cites Takeda et al. for disclosing a sunlight-shielding coating solution that utilizes fine hexaboride particles to impart sunlight-shielding properties which include compounds XB_6 where X=La, Ce, Nd, Gd, Tb, Dy, Ho, Sm, Eu, Er, Tm, Yb, Lu, Sr, or Ca (abstract).

However, there is no suggestion in Takeda et al. for surface-treating the LaB_6 particles. That is, Takeda et al. provides no further suggestion or motivation for the combination of Fisher with Wypych, which is cited to provide the surface-treatment of “fillers”. The citation of Takeda et al. does not correct the deficiencies in the stated *prima facie* case of obviousness based on Fisher, Wypych and *Hawley's*.

Applicant therefore submits that claim 12, as amended, is not obvious over Fisher (U.S. 2002/0086926), Wypych, *Hawley's*, and Takeda et al., taken separately or in combination.

Claim 15 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fisher (U.S. 2002/0086926) in view of Wypych (*Handbook of Fillers*) and further in view of Hawley's (*Hawley's condensed Chemical Dictionary, 13th Edition*) and Hall (EP 0 459 704). (Office action paragraph no. 6)

Reconsideration of the rejection is respectfully requested in view of the amendments to the claims.

Applicant has argued above that base claim 12, as amended, is not obvious over the combination of Fisher (U.S. 2002/0086926), Wypych, and *Hawley's*.

Hall is cited for disclosing an impact-resistant windshield for pressurized aircraft and in

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particular is cited for providing the polymers that can be substituted for PVB.

However, the citation of Hall does not correct the deficiencies in the stated *prima facie* case of obviousness based on Fisher, Wypych and *Hawley's*. Moreover, Applicant's arguments of "unexpected results" for claim 12 are also applicable to claim 15.

Applicant therefore submits that claim 15, as amended, is not obvious over Fisher (U.S. 2002/0086926), Wypych, *Hawley's*, and Hall, taken separately or in combination.

In view of the aforementioned amendments and accompanying remarks, the claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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